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BULLETIN OF THE

TAYLOR SOCIETY

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE
AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

THE key to the problem of industrial peace is the objective science of management, where the science concerns itself not only with things, but also with men. The engineering technician holds the key.—Page 222.

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OCTOBER, 1925 VOL. X, NO. 5

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AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

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Comment

THE attention of members is directed to amendments to the Constitution effective at the beginning of the fiscal year, November 1. These amendments were first passed by the Board of Directors, then amended and passed unanimously at the Ann Arbor meeting, and finally adopted—eight to one—by letter ballot of the entire membership. They establish new simplified and more logical grades of membership and a new schedule of dues, and permit dues to be paid in semi-annual installments. A statement of the new grades of membership and the new schedule of dues will be found on the inside back cover.

ACCORDING to the new schedule, the grades to which new members may be elected directly are: *Member,* for individuals twenty-eight years of age or over; *Junior Member,* for individuals under thirty years of age; *Student Associate,* for students of management in institutions of higher education; *Firm Member,* for an institution which desires to be represented by members of its organization who may be changed at its discretion. A grade *Contributing Member* is provided for those individuals and institutions who are inspired to promote the work of the Society by annual contributions.

DISTINGUISHED service in the promotion of scientific management may be recognized by the Directors through election from the grade of Member to one or the other of two distinguished service grades provided by the amendments. The grade *Honorary Member* is for recognition of exceptionally distinguished service of a strictly scientific nature. The only living Honorary Members are Carl G. Barth, for research and mathematical work under Taylor's inspiration which resulted in "On the Art of Cutting Metals," and M. Henri le Chatelier, French scientist, who introduced scientific management to France. The new grade *Fellow* is for recognition of distinguished service in promotion of scientific management through executive leadership, research, exposition, interpretation and teaching. Any member who has added a significant increment to the onward sweep of the scientific management movement is eligible for this grade.

WHILE the constitutional responsibility for election to distinguished service grades resides in the Directors, they have decided to establish a Committee on Nomination of Honorary Members and Fellows, and to elect only such individuals as are recommended by that Committee. The following members of the Society, widely representative of professional interests, have been requested to serve on the Committee: Paul Cherington, Morris L. Cooke, Henry S. Dennison (Chairman), Richard A. Feiss, Lillian M. Gilbreth, Horace K. Hathaway, Henry P. Kendall, Richard Lansburgh, and Ordway Tead. Any member of the Society may make recommendations to the Committee, which should be addressed at the office of the Society. Election to these grades will be announced each year at the December meeting; recommendations should be in the hands of the committee by October 1 (this year October 20).

Audit of Process[1]

An Ingenious and Stimulating Discussion of Lines of Approach in Auditing Operating Efficiency

By FOLKERT ALLEN SCHMIDT
Secretary and Factory Manager, The G. A. Swineford Company, Canton, Ohio

NO DOUBT exists as to the justification of financial audits. They deal with known quantities and their findings are adjudged by generally accepted principles. Such an audit executed in good faith will show with reasonable accuracy the financial condition of a firm.

The proposal to audit likewise the process of a business may seem to be an audacious suggestion. To find definite expressions of value for a process of organized human activity seems impossible, because the peculiar nature of a particular business apparently demands special laws of its own. However, when the science of construction was first proposed the same objection was advanced, the skeptics of sixty years ago maintaining that it was preposterous to want to use the same rules for building a cathedral than one would use for a barrack. Today we know that the laws of strength and stresses are constant and that special conditions are due to a difference in their relative quantities. We can determine whether or not a building has been designed on the basis of good economics by checking up on fundamentals, and we can prove that the beams are strong enough by a simple calculation of a few relative measurements.

The principles of determining the values of a process are of course also based on relative measurements or balances of simple fundamentals, familiar to all and in no way complicated, mysterious or hard to understand. They may be enumerated as follows:

1. Balance between organization and business problem;
2. Balance between length and frequency of path;
3. Balance between static and dynamic elements;
4. Balance between development and status quo.

I. Balance Between Organization and Business Problem

An organization is not an abstract thing in itself, but stands in definite relation to the task it has to accomplish. In fact, *it is the task which determines the organization* and not otherwise.

Every business man seeks to make profits for himself. Nevertheless, he must think more of others than of himself. He can make profits only through his ability to satisfy others. He is a trader and must buy and sell the things the public wants. He is not a dictator and cannot make people buy his goods merely because he himself thinks they are better than the goods for which the public is calling. He may not approve of the public's tastes and judgments, but if he wishes to make a profit he must be governed by them. Service rendered must equal service demanded. Therefore, the service demanded by the public guides him in setting up his policies, and in selecting, training, coordinating and inspiring his personnel for the control of these policies, i.e., building up his organization.

The business problem calls for certain policies and these policies call for a certain organization for their enactment. But it is a long road from the mere statement of this balance to its actual accomplishment or determination, especially when the business is large and the total effort is divided into many component parts. A large organization creates specialists of promoting, designing, purchasing, selling, manufacturing, storing, accounting, distributing and personnel managing. Oftentimes the interests of these specialists grow antagonistic, or else are fundamentally so, and a determination to what degree the sum of all efforts is really converging on the lines of the main business aim involves an analysis of these special interests, to recognize and establish them and to find a method of weighing them. Furthermore, the grouping of the heads of the organization has to be ordered in such a way that combinations of identical interests are brought together for the purpose of a clear delineation of the relation of one interest to another.

To picture a typical case of opposed interests Figure 1 is presented. The central perpendicular line is the line of the greatest financial returns and leads to

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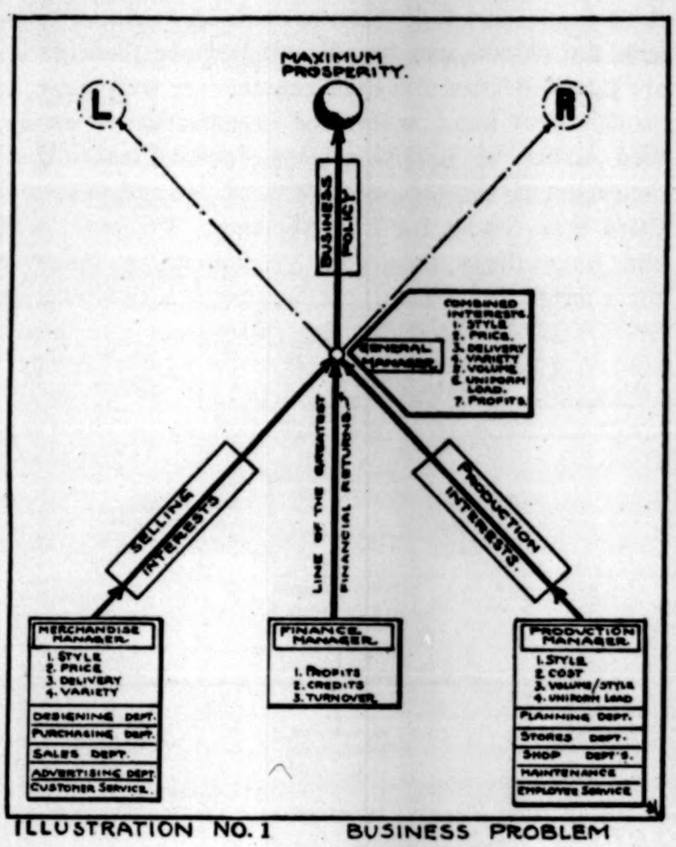

ILLUSTRATION NO. 1 BUSINESS PROBLEM

"Maximum Prosperity." Two primary interests are shown, in a degree opposed to one another: the interest of the merchandising manager on the left and the interest of the production manager on the right. While the merchandising manager is primarily interested in variety and delivery, the production manager wants volume per style and uniform load. If the production interests were allowed to gain predominating influence, the line of action would assume the direction to L and miss "Maximum Prosperity" to the left of it; on the other hand, if the merchandising interests were given full liberty, crowding out production interests, the line of action would go to R, missing "Maximum Prosperity" to the right of it.

It is not a difficult matter of detail cost accounting to point out the limits to which each contending interest should go; however, the organization through its assignments of authorities, i.e., through its structure, must first be correct as to the relative position of its members, so that the division of interests is apparent and can be dealt with. The question whether or not the organization is in balance with its business problem is decided on this important point, because on it depend the correct interpretation of cost in its major aspects and the approach to the line of the greatest financial returns.

Every business of course has its own picture and relative values of interest. In some there is no clash whatever; in others it is hot and fierce. In some it is entirely internal, in others it is aggravated by external conditions. In order to find the resultant of these intersecting forces, it is necessary to establish, plot and weigh them. Furthermore, the organization must match this grouping of forces by its lines of authority, so that each primary interest is clearly represented. *Then* responsibility may be placed intelligently and control exercised over the interests established. *Only* when the interests are thus identified functionally as well as personally is it possible for an organization to carry out the general policy to which these functions contribute.

To illustrate this feature two organization charts are shown. These supplement our first illustration, the plot of the business problem. Figure 2 shows the organization as it existed prior to analysis, while Figure 3 shows the change necessary to have it conform to the plot of the primary interests. The parallel between Figure 1 and Figure 3 is evident and does not require further comment.

For weighing and directing the interests many courses are open, and the choice of the most expedient method is up to the ingenuity of the analysts, much in the same manner as the engineer must decide how best to develop and determine the stresses of live and dead loads in the structure under his consideration. Usually some single tell-tale figure is readily found applicable to all interests, but correct analysis and extreme thoroughness are required for its choice.

If a difference of interests is to be split on the line of financial returns, the finance department is placed in a position of preponderance and its judgment is sought in all phases of the major plan. In that case it would not merely deal with additions and sums of past performance, but would assume the highest responsibility for creative achievement. In this connection we refer to the "Swope Formula," by Gerard Swope, President of the General Electric Company, as published in *System*, April, 1923. This formula provides a mathematical expression for the line of greatest financial returns, wherein the divers interests are represented as factors in a single equation. (Figure 6.)

To sum up: when the organization, in its line of authority, matches the grouping of the natural interests involved in the business problem, and when these interests are weighted and controlled to converge to the line of the main business aim, then the organization in point of process is in balance with its business problem. Audit of process is therefore governed by the first principle of scientific management as stated by Taylor: to develop a science of the work to be done—of the whole as well as of each element separately—to displace the old rule-of-thumb method.

At the same time the basis is provided for the correct personal balance, which we generally think of first when we speak of organization. Although this personal aspect may not appear to be strictly within the scope of audit of process, we hold that it is the first important objective, and we do not believe it inconsistent to point out in how far the correct process automatically solves the personal equation.

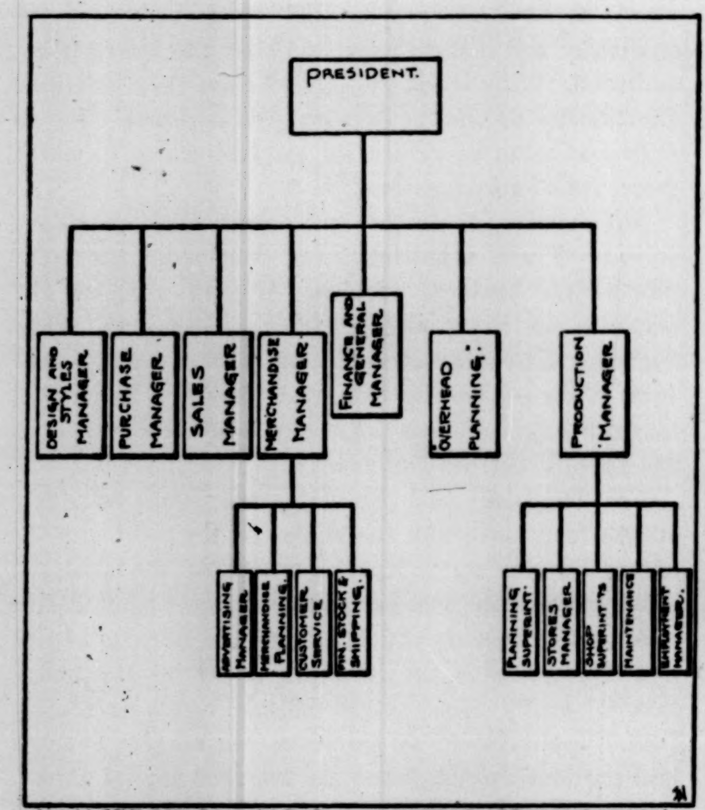

ILLUSTRATION NO. 2. WRONG ORGANIZATION.

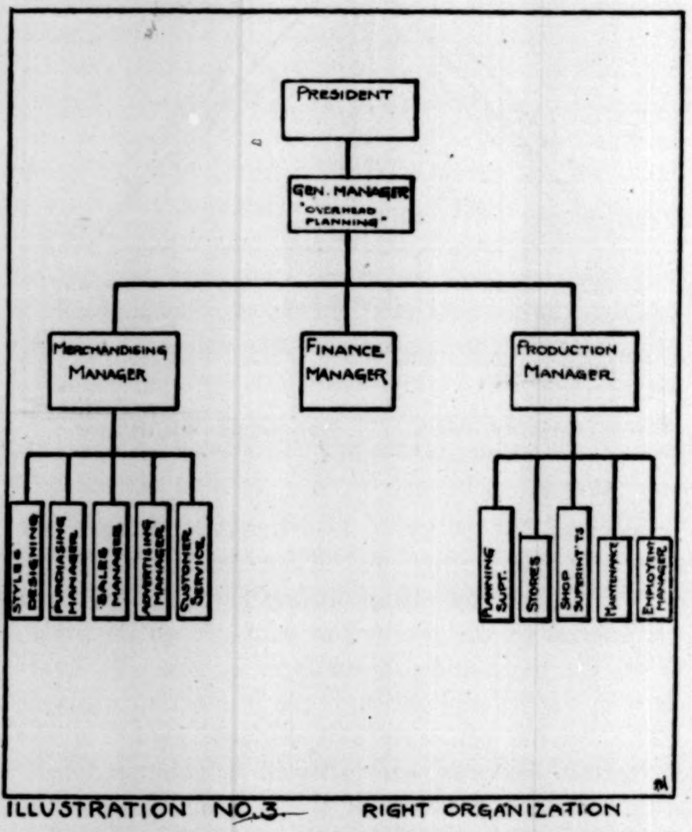

ILLUSTRATION NO. 3 RIGHT ORGANIZATION

The final emphasis is personal effectiveness! As each person in an organization constitutes only a part of the aggregate effort and his effectiveness in consequence can be measured only in relation to a single unified plan, it follows that where such a plan does not exist or is not obvious, the development of the highest personal effectiveness cannot take place. Where the organization is in balance with its business problem, the officers can be efficient because their duties are clearly defined and their contacts are well ordered; on the other hand, where the organization is wrong, men cannot be judged on any judicial basis: their development becomes a matter of hit-and-miss and there is no chance for true efficiency. Personal merit and forcefulness may gain predominating influence for a minor department, but because it is thus exerted in the wrong direction, the effort does not benefit anyone and aggravates the state of disorganization. This matter is especially serious because it involves injustice, waste of effort and heartaches. An organization in balance with its business problem does not waste valuable effort and ambition; on the contrary, it is potent to guard them and to stimulate them in the right direction. It has in it, therefore, the potency of growth like any healthy organism and is a source of happiness to all who are a part of it. This is suggestive of the second and third principles of scientific management as stated by Taylor: to select, train, teach and develop the workman scientifically, whereas in the past he chose his own work and trained himself as best he could; and to cooperate heartily with the men, so as to insure all the work being done in accordance with the principles of the science which has been developed.

II. Balance Between Length and Frequency of Path

The balance between the organization and the business problem is also the first step toward solving the balance between the *length* and the *frequency* of the path of process, as a realignment of the organization naturally affects the path of process when total interests are localized with all attendant functions. On the other hand the knowledge that the process in its entirety is right provides the justification for taking up the details and tying them into the general frame so far established.

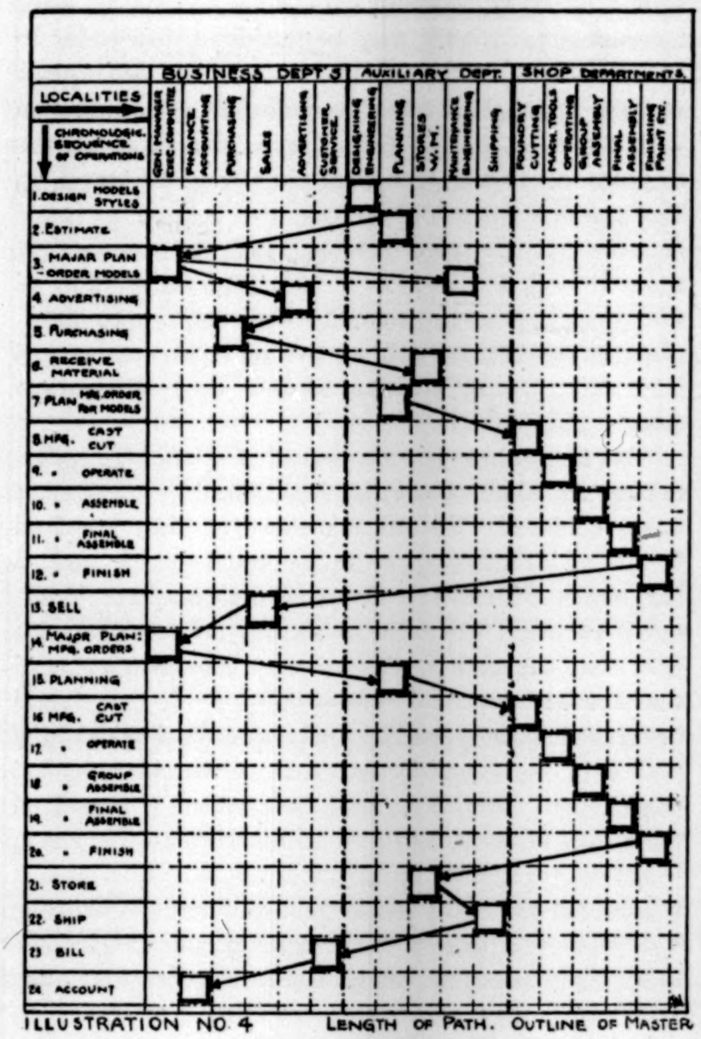

ILLUSTRATION NO. 4 LENGTH OF PATH. OUTLINE OF MASTER

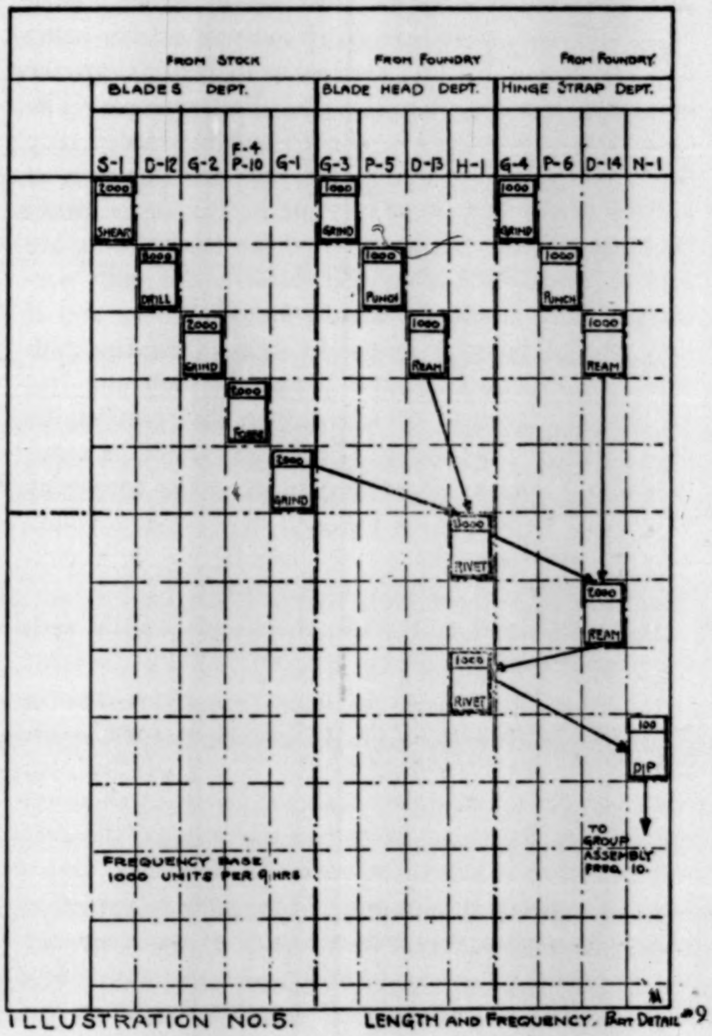

ILLUSTRATION NO. 5. LENGTH AND FREQUENCY. BOT DETAIL #9

Every process has its path. The path is determined by the sequence of transactions or operations on the one hand and their location on the other. For example: the subject-matter of a decision of an executive committee to manufacture and sell 12,000 units of a newly adopted model goes to the sales manager, engineer, production manager, purchasing manager, plant superintendent, stores manager, production clerk, shop foremen, shipping clerk, the consumer, the accountant and the treasurer. The transaction starts on the conference table, assumes various shapes and subdivisions, finally that of the finished product, and ends with the deposit of a check for the goods sold and delivered. If these different "localities" were laid across the top of a chart and the different transactions in their chronological sequence listed along the side, then it would be possible to describe the entire process and thus plot the path. (Figure 4.)

The attempt to show every smallest detail in a single chart would be impracticable, but the general functions may be summed up from start to finish in a general or master chart, and then sub-charts executed for each general function or part of it. Figure 5 is a detail of general function No. 9 shown in Figure 4.

The sequence of passes or subdivisions thus determined would constitute the length of the path; this is conceived as taking place in a horizontal plane. The number of times the path has to be negotiated in its different phases is the frequency of the path; this assumes a vertical dimension in contrast to the horizontal reaches of its length. For example: The order for 12,000 units is decided and forwarded only once; therefore, the line of the path for this part of process would be a single line and its frequency would be equal to one. If, however, these 12,000 units are sold in dozen lots, then that part of the path portraying sales would be followed 1,000 times, and if they should be sold in single units, then the path would be negotiated 12,000 times. If each unit had 12 separate identical cylinders, then that part of the path portraying the boring of cylinders would be negotiated 12 x 12,000 or 144,000 times. The frequency or vertical dimension of the path at this point would be high when conceiving each negotiation, or traveling over it, as an addition to its height.

We understand that while the length of the path is constant, its frequency changes for its different functions. In order to audit process these entirely technical dimensions of its path must be found. Although the mere plotting of the length of the path produces clear visualization and is likely to show up duplication, looseness or unnecessary steps, the real interpretation is gained through the frequency, which has the greater significance. The path is therefore plotted in such a way that an entry of its frequency can be made for every function, and we may reflect that no clear conception of the path's frequency can be had unless the length is first established as a basis.

All the foregoing is only the method of establishing the facts, a segregation of the items involved in the process path, to make it ready for interpretation and measurement.

This record or plan of the path is something permanent; excepting improvement and development, it pictures the life of the institution. It shows where the path is straight, simple and direct; also where it is involved, joint and complicated. It provides an opportunity to find whether or not simplicity of path in one phase with a low frequency is being achieved at the expense of aggravated complications of the path in another phase with a high frequency. In other words, it affords an opportunity to judge the equitable division of responsibilities and establish the fact whether or not the path has bottle necks or represents a cylinder of even contour.

Furthermore, where a high frequency obtains, the length of the path—the distance between operations—should be short. Where operations are taking place infrequently, distance may be sacrificed. In order to gain concrete values in this respect, the floor plans and the plant plans must be consulted in conjunction with the chart of the path. It is cheaper to go the distance of 10,000 feet once than it is to travel 10 feet 144,000 times. Therefore, the balance is found between the distance traveled and the number of times it occurs (frequency) with due recognition of the prevailing circumstances. This applies to interplant shipments as well as to the trips a sales girl may make to the packing counter of a department store.

Also the path of process serves as a basis for ascertaining to what extent the best possible turnover is being achieved. Turnover means the time required for a manufacturing cycle to fulfill itself, and is the object of analysis from several angles. While other elements have their bearing on turnover, we hold that the path is the primary consideration, and that for best practical results other conditions should be regarded as secondary. As described above, the path is in one dimension a record of the chronological sequence of operations and in another a record of their geographical location. Referring to Figure 5, locations are shown from left to right, while time is considered to elapse from the top down. Where divisions in the process cause several operations to be done simultaneously, these appear in the same line, and where they are consecutive they are shown as progressing in time. Thus the process path assumes the proportions of a general route chart, presenting clearly to what extent operations overlap and offering the opportunity for summing up the time required for the entire performance with due allowance for these overlapping or simultaneous operations. While this element is usually pertinent to the work of the planning department, stores department and shop departments, where the product may be set in motion before all preparatory steps have been fully completed and where many parts can be worked on simultaneously, it may also apply to the major functions of advertising, selling and purchasing.

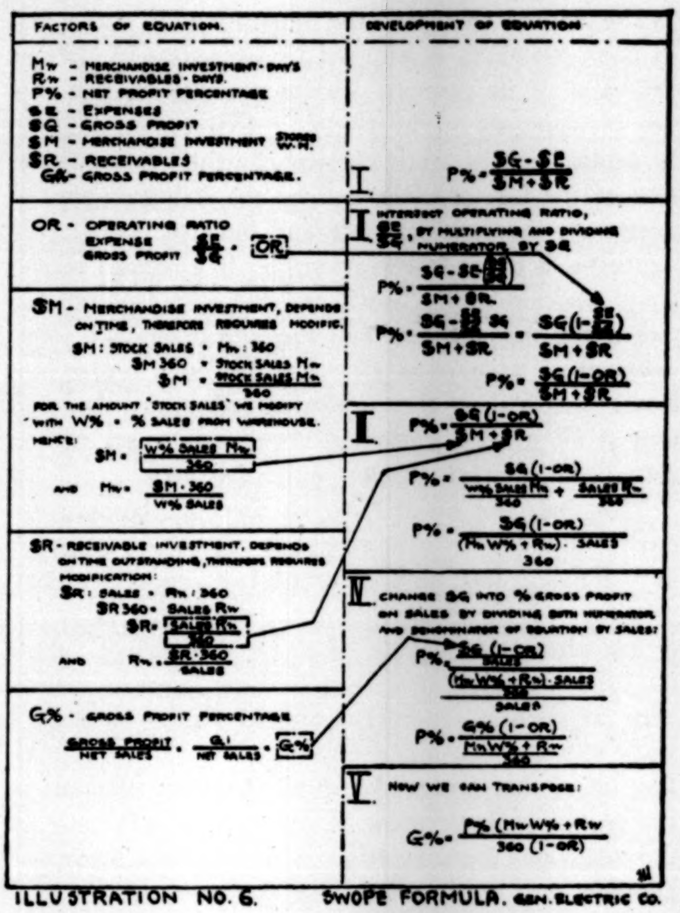
FACTORS OF EQUATION.
DEVELOPMENT OF EQUATION
Mw - MERCHANDISE INVESTMENT - DAYS
Rw - RECEIVABLES - DAYS.
P% - NET PROFIT PERCENTAGE
$E - EXPENSES
$G - GROSS PROFIT
$M - MERCHANDISE INVESTMENT STORES W.H.
$R - RECEIVABLES
G% - GROSS PROFIT PERCENTAGE.
I
P% = $G - $E / $M + $R
OR - OPERATING RATIO
EXPENSE / GROSS PROFIT = $E / $G = OR
II INTERJECT OPERATING RATIO, $E/$G, BY MULTIPLYING AND DIVIDING NUMERATOR BY $G
$M - MERCHANDISE INVESTMENT, DEPENDS ON TIME, THEREFORE REQUIRES MODIFIC.
$M : STOCK SALES = Mw : 360
$M 360 = STOCK SALES Mw
$M = STOCK SALES Mw / 360
FOR THE AMOUNT "STOCK SALES" WE MODIFY WITH W% = % SALES FROM WAREHOUSE.
HENCE:
$M = W% SALES Mw / 360
AND Mw = $M · 360 / W% SALES
III
$R - RECEIVABLE INVESTMENT, DEPENDS ON TIME OUTSTANDING, THEREFORE REQUIRES MODIFICATION:
$R : SALES = Rw : 360
$R 360 = SALES Rw
$R = SALES Rw / 360
AND Rw = $R · 360 / SALES
IV CHANGE $G INTO % GROSS PROFIT ON SALES BY DIVIDING BOTH NUMERATOR AND DENOMINATOR OF EQUATION BY SALES:
G% - GROSS PROFIT PERCENTAGE
GROSS PROFIT / NET SALES = G / NET SALES = G%
V NOW WE CAN TRANSPOSE:
G% = P% (Mw W% + Rw / 360 (1 - OR)

ILLUSTRATION NO. 6. SWOPE FORMULA. GEN. ELECTRIC CO.

One of the important aspects of process is the degree of specialization, that is, the number of divisions made in office and in shop. Sometimes lack of specialization proves bad economy and sometimes overspecialization of an industry has a ruinous effect. It would be folly to expect absolute accuracy in determining the appropriate degree of specialization of a business, yet the process path in its two dimensions—frequency and length—is the logical avenue of approach to this problem and secures tangible results without difficulty.

Specialization is primarily a condition of the length and the frequency of the process path; the modern conveyorized, highly dynamic methods of production and the development of special machinery demand it; economic interests always concentrate on a short broad path, in which as many operations as possible are carried on simultaneously for a quick turnover; they recognize the economy of small specialized operations against the complication of long, manifold operations. The frequency of the path decides how broad the path dare be in its horizontal reach, that is, the frequency of an operation justifies the degree of specialization provided for its performance on *the basis of the path in its entirety.* In order to gain concrete values in this respect, time studies are consulted and the frequencies of operations are multiplied by the times of their duration. In balancing, say, a high frequency of many small operations with a low frequency of a few long operations, specialization is either adopted or rejected. This applies to operations in the office and planning department as well as in the shop.

To sum up: the length and frequency of the process path are balanced in actual distance traveled and actual time consumed through turnover and specialization.

III. The Balance Between Static and Dynamic Elements

Just as the balance between organization and business problem reduces the conflict between the two dimensions of the process path, so the harmonies and balances created by the process path simplify the problem of finding the balance between the *static* and *dynamic* elements in a process. The method of attack for audit of process is such that that step or problem is first solved which means partial or entire solution for as many succeeding steps as possible. While this is true for audit of process in general, it is true for the balance between static and dynamic in particular, as their development depends entirely on the preceding steps developed.

We are aware that the terms *static* and *dynamic* in connection with a process of human activity sound difficult and abstract, but no other terms seem to express quite so accurately what we wish to set forth.

Let us reach a very clear understanding of the terms. In a water system the pipe lines, pumps, fixtures, etc., are the static element; the water flowing through them is the dynamic element. In a transportation system the tracks, bridges, stations, locomotives and cars are the static element; the passengers, the coal, ore and merchandise passing over them are the dynamic elements. In a factory, the buildings, machine tools, benches, forges, conveyors, trucks and chutes are the static element; the materials produced, worked and transported are the dynamic element. While these examples seem perhaps superfluous because of their self-evidence and simplicity, they are enumerated to make us understand clearly one complication involved; namely, that static and dynamic elements are found in relative stages, one within the other, much in the same manner as several small processes may be parts of one large process.

To illustrate: in a transportation system the locomotive is considered a static element in contrast to the dynamic element of the materials conveyed, but the steam system which is a part of the locomotive designates its pipes and fixtures as static as against the dynamic element of the steam conveyed and delivered to the pistons. Therefore, within the static entity of one large process we may find a new balance of static and dynamic elements on a smaller scale.

Likewise, unfortunately, in a business process static and dynamic elements, although consistent in principle, cannot be considered catch-alls for all elements on a single level, but assume a special meaning in accordance with the scope of their application. Analyzing process in this way on the basis of its fundamentally opposed elements, static and dynamic, produces results of true values which ordinarily would remain obscure and permits treating the *effectiveness* of process on the basis of a single principle. Of the many respects in which the balance of static and dynamic elements may be determined, we limit ourselves to A. Organization, B. Uniform Load, C. Path and D. Construction.

A. *Organization.* An organization may be described as dividing the total required business effort into a number of parts, divisions and subdivisions. These divisions necessitate the additional effort of combining, connecting and coordinating the separated individual parts for an intelligent concert of action. This additional expense is the *static expense.*

It could be likened to the cement and mortar of a brick wall, except for the fact that it is not proportionate to the number of divisions made, or necessarily proportionate to the dynamic volume of work accomplished. The proportion of *static expense* to *dynamic volume* depends on the correctness of the divisions made and on the status of development.

The correctness of the divisions made in an organization—some call it the delegation of authority—is founded primarily on the original balance of organization and business problem, as a singleness of purpose and a clear intersection of the lines of interest reduce complications and avoid red tape. More specifically it is decided by the degree of clear separation between static and dynamic efforts. Sometimes these are entirely mixed in the duties of a single individual or department, just as bad organization sometimes confounds many conflicting interests in a single person.

The degree to which the separation of static and dynamic elements is effected by organization decides the value of its process. Taylor accomplished this by the development of the planning department, wherein he centralized the static element, by the functionalization of the foremanship, and by the stringent control over both through schedule and bulletin board. He expresses it in his fourth principle: to effect an almost equal division of the work and the responsibility between the management and the workmen; the management to take over all work for which they are better fitted than the workmen, while in the past almost all of the work and the greater part of the responsibility were thrown upon the men.

This does not mean that wherever a planning department flourishes the economic separation of static and dynamic has been accomplished, but the determination of the degree of their separation is a criterion whether or not the planning department fulfills its fundamental requirement. Many times it merely aims at such a separation and in reality duplicates static expense existing elsewhere. The economic justification of this centralization of the static element in the planning department is the greater efficiency of the static and dynamic effort when divorced from one another, and consequently the decrease of the *total* effort to render a given service. When the total effort is not decreased, the separation is incomplete or wrong, and the only way of reaching a clear determination of the situation is to analyze and measure it on the basis of its fundamental elements.

But audit of process involves a determination not only of the degree of the separation accomplished by organization, but also of the parts segregated and their measurement. This is accomplished with the aid of the process path, which is a record of every transaction and operation involved in the business cycle, whether static or dynamic. Although some organizations accomplish the segregation of static and dynamic efforts for operations as a whole in accordance with the principle of balancing organization and purpose, a complete violation of this principle may be found with respect to the internal organization of one or more of the units of the whole. This happens where development is not based on fundamental principles, but is copied from what somebody else may be doing, or, worse, is a mixture from several patterns.

For example: in a planning department where control data and final records are conceived as the dynamic volume and the supervision and guidance of these as the static expense, the writer has found that of the yearly total of $45,000, the static expense was $35,000 and the dynamic volume could be estimated at only $10,000. Here static and dynamic were mixed up and the principle of their segregation, well accomplished as between the shop and the planning department, was forgotten as to the planning department itself. The process path both in length and frequency had indicated this incongruity, but a segregation of the static and dynamic on the basis of the organization produced the conclusive evidence and pointed the way for a remedy.

B. *Uniform Load.* The first requisite for a high dynamic is a uniform load, because there is then no need for investment in extra capacity for peak loads. In case peak loads are unavoidable, as established by our primary balance of the business problem and organization, the static has to be assumed accordingly. Concrete values are found by comparing the units-sold curve (dynamic) for a twelve-month period with the units-manufactured curve for the same period. The unavoidable high point in the production curve is the dynamic volume; the total machine or plant capacity is the static volume. In balancing dynamic volume with static volume, process would be most economical if they were equal to one another, i.e., if the plant were running to capacity; however, extra static volume allows better upkeep of equipment and provides for flexibility and expansion. Excess static volume is also a safeguard for uniform load, as production need not be curtailed through breakdowns or changes. A moderate excess of static volume is fundamentally justified in any process, but its extent must be determined for the individual case.

C. *Path of Process.* The balance of static and dynamic elements on the basis of the process path is most obvious and interesting where it involves transportation of raw materials, group assemblies and final assemblies of the worked materials; but the principle applies equally to office, laboratory, planning department and engineering department. And although we are interested just now in the ratio of static expense to dynamic volume, a third element enters as a deciding factor in connection with transportation—the *static investment.* As a rule static investment not only decreases static expense, as with conveyor installations, but it also increases the dynamic volume of work accomplished, and we therefore have to do with a factor of potential value insofar as process is concerned.

Considering the process path as an entity, the static investment is the capital tied up in all provisions for traffic in orders, specifications, reports, tools, stores, worked materials and samples, and includes floor space for aisles, roads, runways, bridges, conveyors, tubes, chutes, elevators, hoists and trucks. The static expense in this connection is the cost of operating the entire traffic.

It goes without saying that the greatest economy would be achieved if no money were expended for the static element of work; that is, if work would flow automatically and self-propelled through definitely established mechanical channels. The advantage of such a process is recognized generally; it passes under the name of continuous production. It involves intensive static investment justified by volume, uniform load and assurance of a long period of use. Investigating process in this respect will mean weighing against one another the values for static investment, static expense, dynamic volume and uniform load, the results depending of course on the general conditions of the individual case.

These values also serve as a basis for a valuation of the technical means employed. This valuation is of necessity a matter of personal observation, experience and judgment to which no rules apply; however, the principles for such a valuation as described in the foregoing will form a working basis for attempting an appraisal of this respect.

D. *Construction.* While we have said that a criticism of the static investment from a technical standpoint is a matter of personal experience and that no definite rules exist for it, and while we want to let this stand as a generalization, there are nevertheless certain fundamentals to be weighed in a balance of the static and dynamic elements in technical construction.

Construction enters into a discussion of process very materially in this day of mechanical development. It constitutes the final factor in a process—involving plant, equipment, tools, and mechanical facilities—which in some instances are the backbone of an entire industry and sometimes the main element in its process.

Statics and dynamics have always been considered antipodes in a physical process in a more or less theoretical way, but their application here to a machine unit as a part of a manufacturing process is essentially practical. As a machine unit accomplishes often only one of many operations and frequently constitutes only one element in a cycle of elements, its relation to the operation preceding and to the operation following becomes an important issue. This relation or direction of flow may be recognized or disregarded in the arrangement or construction of the machine unit. Static expense is high when materials enter the machine in the opposite direction of the intended flow, or when materials enter and are discharged at the same point. Tracing the path of the machine process quite as methodically as we have done with process in its entirety will bring out whether or not the "straight line" principle has been employed and if dynamic potentialities have been realized.

In addition to direction of flow, the weight, floor space, mechanical abundance, loss of motion, and so on gain a tangible meaning when weighed in the light of their static and dynamic relative proportions. A detail discussion of these features cannot be offered in this summary, as they embrace too great a field relating to competitive types of mechanical principles involved in machine design. We wish to emphasize, however, that a clear recognition of the static and dynamic elements in a given machine unit lead to basic improvements and often to important development.

It is impossible to speak of construction in connection with process without mentioning the articles manufactured and the influence of their design upon the efficiency and continuity of process. In constructing a bridge, the method of its erection is a constant consideration in arranging the major members as well as the details, and the choice of design is sometimes decided because of a safe, economic and expedient method of erection involved. While original design is obviously *a* basis if not *the* basis for process, in many branches of industry it is entirely neglected and seldom is accorded the place of preeminence which it actually holds. Poor designs are the cause of much static expense; if new designs were augmented with charts of their process paths, allowing comparisons of design in point of process, a great deal of waste would be prevented at the source.

A determination of the value of process therefore would not be complete unless the design of the articles manufactured were analyzed. While design is a creative function and no set rules can be applied for its measurement, yet there is ground on which design may be approached in a systematic way insofar as process as a whole is concerned. We are referring to standardization of weights and measures of the raw materials used, the interchangeability of parts, the number of parts and the number of group assemblies; in short, the elements responsible for a high static expense.

To sum up: the balance of static and dynamic elements allows a broad basis on which to judge organization, path of process, uniform load and construction.

IV. Balance Between Development and Status Quo

Every business is always in a state of development, expansion, betterment and change. None can afford an inflexibly rigid state of things which orders a monotone performance without alterations year in and year out. If the status of a business has been absolute for a number of years, development has of course been nil. An appraisal of process in point of *development* and *status quo* would necessarily rule negatively.

However, a settled status of process is of great economic value. The vim of performance is infinitely greater when guided by well-established routine, the effect being consummately the same as with a well-trained company of men. In fact, the final and full value of a process is never realized until it has reached the proved ground of a long continued run, in which every one has become thoroughly familiar with his individual duties as well as with the part he plays in the ensemble. This familiarity conserves mental and physical energy as decisions and actions increasingly are dictated by the subconscious and become forces of habit. This conserved energy in turn is free to concentrate on the critical moments of an operation or transaction until these too are subjugated, and so an astounding degree of dexterity and capacity for work is often developed. The economic value of this element can scarcely be overestimated.

But now we are confronted by a paradox. Changes are evil and still a necessity. It goes without saying that the economy of the well-established routine is keenly realized by the individual and that his aversion to an uprooting is strong in proportion to the amount of energy required to absorb a new status—this latter especially where duties have been added during the course of time, as developed dexterity has created additional capacity. A change under such circumstances would cause a most irksome situation of impossible burdens. Offhand judgment would say that the man is overworked or is not willing, when in reality development and status have clashed.

Nevertheless, as we must have development to keep pace with the economic strides of time and must also conserve the status quo, it follows that development should take place by keeping intact as much of the status as possible. Instead of having no status and all development, development should affect only a fraction of the organization at a time, and should not proceed to additional territory until the new status is well under way, if not entirely matured at the point of its inception.

The status of a business is external as well as internal. For instance, the acquaintanceship of a group of salesmen in their specific territories establishes the status between the house and customers. A continuous disturbance here will prevent the rapid growth of mutually advantageous business relations, or might destroy the old ones. If change or development is needed in the sales policy, it should be planned by maintaining the ideal balance between the status and development by proceeding slowly and by tearing down only what can be put back in a hurry.

Some businesses are continually in a complete state of change and the true status is difficult to determine. Under the circumstances process would have a low value. In other businesses development is controlled by a budget and a schedule and goes forward in an orderly progression of successive steps until the intended status is reached. Here the balance of development and status can clearly establish how much of the organization is being affected at a time, and not only can process be appraised but a reasonable estimate may be made of the projected improvement.

To sum up: The value of process finally is measured by the proportion of intact status to the extent of development being accomplished.

In conclusion we wish to say that we have merely touched the surface of the problem, particularly with regard to the main issue, which is the balance of the organization and the business problem and the control of and adherence to the principle aim established for a particular group. Quoting from Mr. Ford's Page[2]:

> The tendency of every group to forget the principles on which it was founded has always been the great cause of organized failure. Established to maintain and extend a definite truth, the group trend has been consistently toward the self-absorption of the energy it receives. Could great organizers foresee and provide against this seemingly inevitable trend, the world would be afflicted with less ponderous group machinery and would possess much more efficient facilities for carrying on its vital functions than is the case today. In our time we are seeing the growth of the spirit which will eventually succeed in overcoming this Law of Adverse Returns.

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[2] *Dearborn Independent,* May 16, 1925, page 11.

Fall Meeting

Engineering Societies Building, New York, December 3-5, 1925

THREE joint sessions with the Management Division of the A.S.M.E. are planned, presenting papers on Production Control in the Newsprint Industry by George D. Bearce; Plant Design and Plant Efficiency by Harold T. Moore; The Present State of Industrial Psychology, with especial reference to selection, training, technical cooperation and good will, by Lillian M. Gilbreth; Psychology in the Organization of Prison Industries by Edgar A. Doll, who installed such work in the New Jersey State Prison at Trenton; Workers Cooperation in Management in the Baltimore and Ohio and Canadian Northern Railroads, by Otto S. Beyer, Jr.

Other sessions are being organized on merchandising and selling; the interests of the financier in better technical management; the relations between such executives as presidents, general managers, and department managers; a special session organized by and for younger members; and two sessions for teachers of management.

Save the Dates—December 3-5

331.25

The Great Obsession[1]

A Challenge to Management Engineers and Industrial Psychologists to Join in Establishing a Circular Response Between Employers and Trade Unionists

By ROBERT W. BRUÈRE
Associate Editor, *The Survey*

IN Harper's Monthly Magazine for July, Elton Mayo, research associate in industrial and clinical psychology at the Wharton School of Commerce and Finance, University of Pennsylvania, psychoanalyzes what he calls The Great Stupidity, vernacular for the Great Obsession, which, in the guise of the Class War between Capital and Labor, bedevils our industrial civilization. In this era of rollicking prosperity, these halcyon days of industrial peace, we in America seem to be taking it for granted that within our happy boundaries the malady of industrial unrest, once the occasion for hysterical alarms, has gone the way of malaria and yellow fever. In spite of the rumblings in the coal fields, in spite of the hepatic depression in the textile industry, in spite of jurisdictional disputes in the building trades where fevered discord between the plasterer and the bricklayers gives a tubercular tinge to contracts appraised in the millions, we are cheerfully disposed to think of the more malignant phases of industrial unrest as peculiar to the sick civilizations of Europe and the Far East. Who among us has not felt the lotophagic appeal of that benign illusion? So pleasant are its accompanying daydreams that we resent the intrusion even of such great authorities as Mayo cites—biologists, psychologists, economists, historians, political and social philosophers—who, harboring a pessimistic view of the state of our civilization, warn us that there are forces at work among us, feuds, factions, divisions, which are as "the mists of death," symptoms of the "first stages of collapse." Of these, one of the most menacing, they conceive, is the warfare between Capital and Labor, "sometimes active, sometimes passive, but always menacing," child of the Great Stupidity, nursling of the Great Obsession.

Civilizations, like individuals, have their pessimistic reveries, breeders of discord, destroyers of internal harmony. Mayo quotes Machiavelli on the dangers that beset republics as a corrective of our too ready acquiescence in Rousseau's "pious hope that desires and impulses inimical to the general welfare will somehow cancel one another in general discussion or general assembly." Machiavelli, he thinks, is a robuster and wiser counsellor. "Those people," wrote the Florentine sage in the sixteenth century, "who expect a republic to remain without divisions deceive themselves very much; but it is also true that while some injure a republic, others do not. The divisions which injure are those accompanied by factions and feuds, whilst those which do not cause factions or feuds are a benefit to a republic."

In Australia since 1893 the division between Capital and Labor has acquired the morbid quality of factions and feuds. There the industrial issue has been generalized as a political issue. Strikes are more frequent than ever before in spite of the statutory courts of arbitration. He continues:

> Obsessions are fostered and strengthened by every political event. One of the greatest industrial upheavals of recent years, the Sydney railway strike of August, 1917, was mainly caused by the workers' unreasoning terror of the mere word "Taylorism." The Railway Commissioners attempted to introduce a card system of recording work, with a view to accurate measurement of cost. The trade unions and the Labor Press stigmatized this as an attempt to introduce the "Taylor System" into the workshops. The Railway Commissioners, instead of dealing with the human situation, tried to meet fear with force; they ordered the introduction of the card system. The railway and tramway men at once came out on strike; a few days later coal miners, seamen, wharf laborers, gas workers, butchers, and many other unions ceased work. In some degree the strike spread through all the states of the Autralian Commonwealth. This is no solitary instance.

Great Britain seems to be traveling the same road—"the same calamitous road." In the United States, owing to the absence of "class consciousness," the situation, superficially viewed, seems altogether different. Many foreign observers, Australians, Englishmen, Germans, and especially Russians, prophesy that the difference is only one of retarded development, that we too are predestined to travel the same road. The spirit of warfare, they think, has been bred in our bones by ages of the struggle to live until it has become instinctive. There is an inherent economic conflict between the major industrial groups which can only be resolved, they say, by fighting it out. Mayo cites the case of "an otherwise intelligent employer who refused to grant a concession recommended by his executive on the ground that a union in another factory had made a similar request. He did not wish to institute an obviously necessary reform because it was irrationally confused with unionism in his mind." This also is not a solitary instance. Neither American employers nor American laborers are free from the biases, fears, obsessions that dance a mad accompaniment to the warlike spirit when it is aroused, and strive to awaken it with tom-tom rhythms when it sleeps. But they are nevertheless comparatively free, still so comparatively free that Mayo thinks we may detour the "calamitous road" if we bring to bear upon our situation the analytical and generalizing mind and canalize our latent feuds and factions by inducing employers to deal intelligently with their employees.

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[1] Reprinted, by permission, from *The Survey,* August 1, 1925. The subtitle is ours.

How is this to be done?

> If the virtual class-war which obtains in British communities is to be avoided [says Mr. Mayo] it can be avoided only by anticipating the unionization of industry, by making it unnecessary. The first step should be a clear definition of the conditions of the open shop by some association of intelligent employers. . . . The second step is even more important. An open-shop policy based on the private opinions and prepossessions of a few employers is utterly valueless. What the social situation is in its broader aspects can be discovered only by adequate investigation. Such investigation, like any other, requires experts—in this instance, experts in human research.

No one has penetrated closer to the center of the industrial conflict than Mr. Mayo, no one has more luminously defined its character. The psychological technique of which he is master is as indispensable to the development of a science of human relations in industry as the earlier technique of Frederick W. Taylor has proved to be in the development of the science and art of administration and management. Now it is probable that no one thing has so greatly retarded the indispensable progress of Taylor's scientific technique as the quite unnecessary affront to organized labor and the trade unions which accompanied its early development. Taylor, too, believed that by the intelligent use of the science of management, employers and employers' associations could anticipate the unionization of industry by making it unnecessary. Copley, his biographer, voices the opinion "that if Taylor had lived to witness the change in the attitude of many labor leaders since the World War, he would have modified his own attitude towards trade unions."

It would be a tragedy of the first order if a repetition of Taylor's failure rightly to appraise the viability and functional significance of the trade unions should similarly bedevil the introduction of the indispensable technique of modern clinical psychology into the field of industrial relations.

Instead of laying The Great Obsession, the remedy which Mr. Mayo suggests is preeminently calculated to foster and exacerbate it. His proposal in itself might not unreasonably be construed as a concession to that very obsession against trade unions which he deprecates. The danger of such a tragedy is the greater, not only because Mr. Mayo's work has been widely recognized as having much of the pioneering quality of Taylor's, but also because he is research associate at the University of Pennsylvania by virtue of a grant from one of the Rockefeller funds—a fact which in itself is likely to awaken unreasoning prejudice, especially among labor leaders, who are unfamiliar with the policy of scrupulous regard for the scientific detachment and independence of investigators which characterizes the administration of the various Rockefeller educational and scientific foundations.

There is a certain dramatic quality in the circumstance that Mr. Mayo's article appeared immediately after, and indeed was written a few months before a historically significant meeting of the Taylor Society in New York in which disciples of Taylor and representatives of the trade unions joined in removing the Great Obsession from the path of creative cooperation between management and organized labor.

Class war, like war between the nations, may be inevitable. It may be implicit in our present industrial system. It may be inherent in the constitution of human nature. But to drift along on this fatalistic assumption would be to surrender one's faith in the capacity of men to shape their destiny in the light of intelligence, one's faith in the pragmatic reality of science and the healing efficiency of the scientific method when applied to the ordering of human affairs. To disregard the divergence of economic interest between owners and wage-workers, to play the ostrich with respect to the elements of class warfare that dart like summer lightning through our American industrial and economic life, is as great a stupidity as the jehovah complex of the hard-boiled industrial autocrat or of the radical who dreams of himself as riding the revolutionary whirlwind. But when we have recognized the existence of the problem, the question arises here, as it does in international relations, whether we shall spend our energies girding ourselves for battle, or whether we shall subject the problem to intelligent and objective scrutiny, bring the method of science to bear upon it, and seek the basis for a concert of classes, as of nations, grounded in reason, justice and goodwill. This is what the more thoughtful followers of Taylor, members of the society which bears his name, to whom science is not a catch-word but the breath of life and the hope of peaceful progress, have during recent years, under the leadership of their managing director, Harlow S. Person, been attempting to do.

What is the point of effective concert between Capital and Labor, between management and men? What is the channel of creative cooperation through which the latent division between them, instead of festering into factions and feuds, can be turned to the benefit of the republic? Mayo's conclusion that the happy future of American industry "would seem to depend upon the intelligence of employers and employers' associations" in "anticipating the unionization of industry, by making it unnecessary" seems to me without scientific warrant, a psychologically unsound concession to the still dominant temper of American, and especially pioneering American, public opinion. The same logic, the same inherent functional urge that produces employers' associations, have produced and will continue to produce associations of wage-workers. To ignore this is to fail to take account of all the elements in the total situation.

Employers' associations, like trade unions, are by origin and current policy militant organizations. The same is true of nations. But peace and creative cooperation between two nations is not likely to come about by the adoption by one nation of a policy designed to eliminate the other. If we make our approach to the problem of industrial peace by urging one of the major parties to industry to adopt a policy designed to do away with the self-governing associations of the other, we shall but pour oil on the fires of obsessional irrationality. There are conflicts of interest between them. There are also common interests. The most obvious of these is the elimination of waste through efficient production.

The key to the problem is the objective science of management, where the science concerns itself not only with things, but also with men. The engineering technician holds the key. It is through him that a circular response may be set up between the two parties through which they will achieve, not the elimination of one by the other, or the adjustment of one to the other, but an integration which will yield what Mary Follett calls "the plus values of conflict."

One could feel these plus values emerging at the historic meeting of the Taylor Society to which I have referred. The discussion was opened by Geoffrey C. Brown, consulting industrial engineer, with a paper on Scientific Management and Organized Labor Today—An Example of Cooperation Between Management and Organized Labor Which Indicates One Direction of Industrial Progress. The speaker was obviously conscious of a certain temerity in what he was about to say. He was uncomfortably aware of the ambiency of the Great Obsession—on the part of scientific management employers against the trade unions, on the part of trade union leaders against "Taylorism." In a foot-note to his rangy title, he hastened to explain that by "scientific management" he did not intend to imply any particular system or group of functions, but rather management conducted in the light of scientific inquiry and knowledge, "management based on facts."

He began by taking note of the accumulating evidence that organized labor is withdrawing from its old attitude of hostility to the introduction of scientific methods into industry. Then he made a statement which hardly ten years ago would have made many of his professional colleagues bristle. Coming from a disciple of Taylor, proclaimed in a meeting of the Taylor Society, it made many of those who heard it sit up and take notice.

> I believe [he said] that those managers are most progressive who now concede the right of labor to organize and to bargain collectively through accredited representatives on questions of wages, hours of work and working conditions. Not to concede this right is, if we reverse the situation, similar to, and about as logical as a refusal on the part of labor to negotiate with management, the accredited agent of an organized group of investors. But if this bargaining or arrangement of terms is to be conducted intelligently and with, as it were, all the cards on the table, labor must comprehend the aims and to a considerable degree the technique of management, while manage-

ment, in its turn, must be equally alive and sympathetic to the spirit of the labor movement. Otherwise the two are working at cross purposes and any attempt at bargaining degenerates into an effort on the part of each to hoodwink the other.

As an abstract statement, this might have been interpreted by the skeptical as a pious and conciliatory platitude; as a conclusion derived from experience in wrestling with the Great Obsession it acquired the freshness of a new day.

There is probably no group in the industrial world that has been more constant and courageous in devotion to science in management than these disciples of Taylor. They have followed the Great Obsession to its lair; there was a time when they were more or less under its domination; they have wrestled with it; they are well on the way to its mastery. Mr. Brown gave reports of his encounters with the black-winged Apollyon.

In the autumn of 1923, for example, he was called into consultation by the owners of a small New York factory, dedicated to the manufacture of mirrors. He found conditions there which those who have explored American factories of the old individualistic tradition generally expect to find—no adequate stores-keeping, no method of scheduling orders in advance in relation to the plant's manufacturing facilities, no vestige of a cost system. If the owners of such plants found their kitchens in such a state of general confusion and clutter, they would berate their wives for thriftless slatternliness. Such employers hate to have their habits disturbed. They know their business. They have gotten along well enough for years. They are practical men. Why should they change? When business falls off and they lose money, the fault is not with them but with the ruthlessness of their competitors, the selfishness of the money lenders, with the irrational caprices of nature, especially human nature. Under pressure of adversity they lay off men with little or no notice, cut wages, lengthen hours. Then the walking delegate stalks in upon them—and suddenly becomes the symbol of all the evils by which they are beset. Words are exchanged, the sound of the tom-tom beats through their subconscious memories. Presently both sides act under the irrational influence of the Great Obsession.

This was the situation in Mr. Brown's mirror factory. The problem, as he explained, would not have presented extraordinary difficulties if it had consisted merely in affecting a physical reorganization of the business. It was this psychological obstacle, the emergence of the Great Obsession, that made the path of the investigating engineer a hard and dangerous one to travel. The workmen in this open shop were strongly organized in a trade union affiliated with the A. F. of L. There the union was, as a matter of fact, though the management refused to recognize it. Three times in ten years the plant had been brought to a standstill by strikes. But rather than enter into cooperative relationship with the union, "the management had grown so accustomed to this expensive type of interruption that they frequently referred to it as an unfortunate but inevitable condition of manufacture."

The workers as trade unionists were in a similar state of irrational opposition to change. Anything suggesting "Taylorism" was taboo — immediately evoked the Great Obsession. After Mr. Brown had succeeded in inducing the employers to install a modern cost system, he attempted to introduce a system of scheduling orders in advance through the factory, so that work could be systematized and the machines could be uncluttered. Of course no such system could be made to work effectively until the standard time and cost of each operation had been determined. The workers, too, were creatures of habit. They wanted to be left alone to do their work as they always had done it. They, too, were practical men. If one of these outside experts said that they were doing their work wastefully and inefficiently—well, he was simply a theorist, who would be better off, perhaps, for a little practical experience. But the plant could not be saved from bankruptcy without the accurate determination of the standard-output capacity of each manufacturing operation. This involved time study, and to the ordinary workman time study is "Taylorism," and that is taboo.

Mr. Brown's initial attempts in this direction caused an incipient strike. Under ordinary conditions, this threat of strike would have provoked a lockout; rather than have the union "dictate" to him, the employer would have preferred to shut down the factory, even to liquidate his business. But a consulting engineer had been hired and the problem was turned over to him.

[Here follow excerpts from Mr. Brown's article in the June BULLETIN which explain how he secured the cooperation of shop steward and walking delegate and the local's approval of his investigation.]

Conference, discussion, patent open-mindedness finally prevailed. . . . [His two years' experience] led

Mr. Brown to the conclusion that "the most important single gain lay in the establishment of a *spirit* of cooperation and what might be termed *sane* relations between management and union." Where such sanity enters in, the Great Obsession flies out through the door.

This record is an interesting sign of the times. Quite as interesting was the response of the members of the Taylor Society and of the old line trade unionists. In the discussion which followed Mr. Brown's paper, a number of management engineers bore similar testimony. . . . The management engineers are proving that they are practical psychologists as well as masters of materials and machines. But as psychologists they are not experts. Their work needs to be supplemented by the special knowledge and technique in the development of which a small handful of men, among whom Elton Mayo is preeminent, are doing work of as great pioneering importance as that of Taylor himself. It would be a very great tragedy if in the light of the experience of the disciples of Taylor the industrial psychologists should reopen the old breach between the technicians and organized labor. It would be a blessed assurance of industrial peace and sane industrial progress if the industrial psychologists now joined with the specialists in the art and science of management in establishing a circular response between employers and trade unionists through which factions and feuds would be averted, the Great Obsession would be laid, and the conflict between them would be made to yield plus rather than minus values. Is not this the true mission of the technical experts, the trail-blazers and protagonists of the scientific spirit in industry and society?

A Supplement to "The Great Stupidity"[2]

By Elton Mayo

YOUR kindly warning (see "The Great Obsession," *Survey Graphic,* August, 1925) shows me that there are possibilities of misunderstanding in my Harper article. Since you wish me to define my attitude, to show that I am not an apostle of the forces of reaction, you shall have your way. There is nothing in all you say with which I am not essentially in agreement, even in those places where you become most critical.

I should like you to remember in the first place, however, that in writing "The Great Stupidity," I did not wish to make unwarranted assertions with respect to things American. I am a visitor here for a short term of years; I have been treated with the most extraordinary courtesy and hospitality; facilities for investigation and the extension of my knowledge have been freely offered to me by employers and trade-unions alike. It has seemed to me that it would ill become me to make wide assertions with respect to a situation which I have observed in one small corner of one great city. I have had no wish to add myself to that growing list of visiting wiseacres who give gratuitous advice, based on their mismanagement of their own affairs, to America.

I had hoped it would also be clear that I was not intending, or offering, any sort of general solution of the so-called Capital-Labor difficulty. I believe that all the solutions offered so far have been too general; that the time has come for us to sit down and investigate closely particular situations with all the powers science has added to our equipment. This is, in fact, the method for which I stand, in so far as I stand for anything novel in method. If one takes account of the facts elicited by anthropological inquiry, by psychopathology, by clinical physiology in any industrial problem, difficulties of management tend to clear themselves away before the wider understanding thus achieved. My points—one and two—with respect to the "open shop" were not intended as a recommendation of the open shop. Taking it merely as a fact which had come under my observation, I was concerned to show that an open shop movement which serves to cloak bitterness and enmity cannot do anytning but extend and intensify the social disaster. This, at least, one can say from knowledge of what has happened elsewhere, without pretending to any special knowledge of things American. And in saying this I was considering the lesser problem of employers' associations, rather than the wider problem of industrial organization.

With regard to this wider problem, anyone acquainted with it has to admit at once the historic necessity and justification of trade-unionism. In England of the early nineteenth century, it was customary to drive little children to work in the mines by making deductions of what they would have earned from their father's already small wages. Once in the mines they were worked for twelve hours a day, harnessed to trucks, half-naked, crawling on their hands and knees. J. L. and Barbara Hammond have made abundantly clear the atrocious neglect and oppression in which trade-unions as agencies of working class defence originated.

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[2] An open letter to Mr. Bruère, reprinted, by permission, from *The Survey,* September 15, 1925.

These children were the grandparents of the present generation of workers; it is not surprising that the European worker is "class-conscious" and suspicious of the intentions of his employer. In Europe and in Australia (and perhaps in America, too) trade-unions, very much on the defensive, will be an integral part of industrial organization for many years to come—until the traditional memory of this blot upon our history is wiped out. So long as we are content to attempt to work out our salvation by partisan feuds and factions, so long will obsession and irrationality tend to clog and hamper allegedly economic discussions. And for this period, I have no doubt the organization of workers in trade-unions will be needed to insure them against the possible concentration of power in the hands of embittered reaction.

In Europe and in Australia, the existence of trade-unions is nowadays assumed as a matter of course. The first thing that a visitor to this country notices is that here it is not so. And the second thing he notices is that the class-conscious worker, of the European variety, is very rarely encountered in the factory. To such a visitor these are very remarkable facts; they mean that in this country there is an opportunity, phrase it as you will, of anticipating the advent of "the great obsession." When I say this I do not mean that every right is to be conceded to employers' associations and that the unions are to be ruled out of court. In our present social condition there must be free organization amongst the workers—the Australian figures I quoted in *Harper's* show that any blind opposition to this only makes "unionism" stronger. What I do mean is that this country seems to have an opportunity of intelligently anticipating that dichotomy beween employer and employed which vexes and has vexed Europe. Where unionism in Europe, however necessary, is often a source of instability and uncertainty, it might be made here a continuing means to stability and security. There are many instances of precisely this in the United States; you quote in your article an instance of how this may come to be.

It was with something of this in mind that I wrote the title "The Great Stupidity" above my Harper article. It was addressed primarily to the present rulers of society. Brooks Adams' contention that the revolutions of history have been due mainly to the stupidity of a ruling class echoes in everything I wrote. Obsessions in those who are ruled matter little and are soon superseded by reason if those who rule are not obsessed.

Machiavelli's sage observations upon Florentine history and the education of princes make an admirable contribution to the study of industrial organization. It does not matter whether one is considering industry under a Russian or an American regime. There must always be skilled executives set more or less in authority over working groups: this is not a political question, it is a necessity of efficient operation. From what one hears, the Soviet is facing industrial problems of human organization entirely similar to those of England and America. And these problems cannot be solved by power or force or partisan factions, but only by improved understanding. And in this instance, I do not mean an improved mutual understanding between groups, though that is important too. I mean an improved understanding of what is actually wrong, for in any such difference of opinion there is always something wrong; and, as a general rule, neither the employer nor his employees have the least idea what the problem really is. This I hope to illustrate on a future occasion.

There is something then beyond all these questions of group organization and mutual forbearance and understanding. This something is human ignorance and the historical tendency to self-justification and obsession in a ruling class or clique. Only so far as scientific investigation is encouraged—anthropology, psychopathology and clinical physiology as well as economics — is the problem of Machiavelli's Prince likely to be solved. My article was intended to convey my impression that the United States seems to excel other countries in this respect—that it will be well if what is now a tendency becomes an explicit aim.

But I realize that my impression must be subject to correction by those who know the American situation better than I do, better than I ever shall know it. And I welcome correction that will save my comments from being extensively misunderstood.

Management Week
October 19-24, 1925
Subject: Waste in Industry
Boost the meeting in your town

Workmen's Compensation Insurance[1]

The Evolution of Compensation Laws—Salient Features of the Present Law

By **GROVER KINGSLEY**
Manager, Syracuse District, Liberty Mutual Insurance Company

IN PREPARING this paper I have had in mind that many of you are not actively engaged in the details of handling workmen's compensation matters for your respective industries. My discussion of this subject, therefore, will be as broad as possible.

Evolution of Compensation Laws—Common Law

The facts leading up to the adoption of compensation laws should be known in order to give one a background for a more comprehensive picture of the laws that exist today.

Prior to the introduction of machinery into industry, employer and employee worked side by side in the same shop at the common task. Their relation was an intimate one which made it possible for an employee, injured during the course of his occupation, to adjust the matter satisfactorily to all concerned. The legal relation of master and servant did not present a serious problem.

The introduction of machinery into industry in the late eighteenth and early nineteenth century ushered in an era of production of commodities on a large scale and seriously affected this intimate relation between employer and employee. The employer had so many employees that it was impossible for him to know them all intimately as he had in the past. Consequently, when difficulties arose they usually had to be settled at a court of common law. There were more and more of such disputes, for the introduction of machinery had caused a marked increase in the number of accidents and also in their severity. The relation of master and servant was becoming more and more intricate each year.

When a man was injured during his employment and he wished to recover damages, he had to sue his employer and prove him negligent. This was a very difficult thing to do, for the employer had three common law defences that were invulnerable, namely: the fellow servant rule, assumption of risk, and contributory negligence. They are defined briefly as follows:

Fellow servant rule means that a man injured as the result of negligence or carelessness of a fellow servant has no recourse under the law for recovering damages from his employer.

Assumption of risk means that a man voluntarily assumes the inherent hazards and risks of the industry when he is employed, and if he does not like them he may work elsewhere. The common law courts held during this period that if a man was acquainted with the risks of his job he could not recover from his employer.

Contributory negligence means that no recovery is possible in cases where an accident is due to any negligence on the part of the employee, even when the employer is at fault.

With these three defences against him the employee had very little chance to recover damages from his employer. It cannot be denied that the courts then looked with little favor on the claims for injuries presented by workmen. They felt that to recognize the liability of the employer for damages brought by injured employees would throttle enterprise and in many cases be ruinous to small manufacturers.

Employer's Liability Acts

The individual employee was no longer able to cope with his employer, who had organized his wealth into corporate form, so the employees also organized—in trade unions—to bargain collectively with their employers, or capital, to protect their individual rights. About the middle of the nineteenth century organized labor got public recognition of the theory that it is the duty of the state to protect its citizens along social lines. This recognition took shape in the form of a less severe interpretation of the common law. In fact, the three common law defences referred to above were modified by statute, so that an injured employee had a much better chance to recover damages from his employer than in the past. These new laws modifying the common law were known as employer's liability acts and were the intermediate steps to workmen's compensation acts.

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[1] Abstract of an address before the Central New York Section of the Taylor Society, Syracuse, May 8, 1925.

To illustrate what this legislation did: the fellow servant rule was modified so that if a *foreman* in a chemical plant caused an explosion killing a number of workmen who were not in any way at fault, the dependents of those whose lives were lost could recover from the employer. The doctrine of assumption of risk was also modified; it was provided that under industrial and economic conditions where workmen are forced as a matter of self-preservation to accept employment regardless of the risk involved in the trade hazard, the argument that the employee assumes the risk and should therefore be barred from recovery, is not only far-fetched, but economically unsound, if thought is given to his dependents.

These modifications of the common law provided very little relief; it was still very hard for an injured workman to recover from his employer what we now know to be his just rights. The system resulted in friction between employer and employee, litigation involving perjury, and large verdicts to those least entitled to them while forcing others to the degredation of charitable relief.

The employers realized that they had to spend large sums defending the rights which were theirs under the law and that these sums were wasted as far as affording relief to the injured persons was concerned. This litigation promoted ill will between employer and employee, for no matter who ultimately won the verdict, there was ill feeling on the part of the one defeated.

Compensation Acts

Compensation acts developed in Europe, with the United States following its lead. Germany took the initiative, as she always has in social legislation, principally on account of her industrialism and her highly developed trade unions fostered by the government. The first act, passed in 1884, was sponsored by the socialist party and finally by the imperial government. Other European states immediately followed Germany's lead. The benefits under these acts are similar in form to those we have today in this state.

In the United States we were studying the European system of workmen's compensation from 1894 to 1909. The employer's liability acts enacted in nearly all our states were a failure as they were in Europe, in that the claimant had to engage in an expensive and protracted litigation which he could ill afford, and during which time he received no relief when it was most needed. The situation gave rise to a class of unscrupulous lawyers—the so-called ambulance chasers, who accepted cases on a percentage basis, sometimes as high as 50 per cent of the verdict. Study of the principles and workings of the various compensation laws of Europe led law-makers here to believe that the remedy for the situation was the enactment of workmen's compensation laws similar to those adopted in Europe. Consequently, from 1910 up to the present time the various states have adopted compensation laws, until now practically every state has a workmen's compensation act in force.

The basic principle underlying the theory of workmen's compensation laws is that an employee who sustains an injury arising out of the course of his employment should be indemnified for loss of earnings without regard to fault. In other words, the employer is held responsible for the damage, and the cost of such indemnification comes out of the running expenses of the concern. There are two exceptions, however; if it is proved that a man willfully injures himself, or that he was intoxicated at the time of the injury, he has no recourse under the law to recover from his employer.

The principle of this law is agreed by nearly all today to be just, humane and economically sound, and the best means so far of solving that perplexing legal relation of master and servant as it affects the servant in case of occupational accident.

The first compensation act passed in the United States was enacted in New York State in 1910. The Wainright Commission, appointed by Governor Hughes, reported in 1909 with a draft for a limited workmen's compensation act. The Wainright Bill, enacted in 1910, was later declared unconstitutional by the Court of Appeals in the famous case of Ives vs. South Buffalo R. R. Company. The court held that the act was in conflict with the fourteenth amendment to the constitution, in that it permitted the taking of property without due process of law. The court recognized the right of the legislature to abolish the three old common law defences, but it did not deem it proper for the legislature to grant compensation without proof of negligence on the part of the employer. It was, therefore, necessary to amend the constitution; this was done in 1913 and in 1914 our present workmen's compensation act was passed, effective July 1 of that year. The constitutionality of this act was later upheld by the United States Supreme Court.

The New York act is compulsory as to enumerated hazardous employments and elective as to all others. Insurance guaranteeing the rights of employees is required as will be explained later. The act is extraterritorial, which means that employees hired in this state and working in another state are subject to the benefits of this state in the event they are injured.

The New York law is today the most liberal compensation act in the country in every one of its various benefits. It provides for only a one week waiting period from the date of the accident until the injured man is entitled to draw compensation. The maximum amount for disability is $20 a week and the minimum $8, with a schedule of specific benefits for dismemberments and loss of use of limbs, members and sensory organs of the body. Disfigurement is also taken into consideration. Medical and surgical aid has to be provided by the employer. In case of death, funeral expenses not to exceed $200 are allowed. Benefits are allowed the widow, and children and grandchildren under eighteen, brothers, sisters, parents and grandparents, if legitimate dependents of the deceased. The total compensation in a death case cannot exceed $100 per month or 66⅔ per cent of the deceased's average annual earnings.

Previous disability does not preclude compensation for a later injury. For instance, suppose a man with one eye applies for employment. The employment manager would tend to discriminate against him on account of the liability for total disability if he should lose the sight of the other eye. A provision in the law takes care of this situation, in order to prevent such discrimination. In the event he loses his other eye, his employer is liable only for that specific loss and not for the total disability. The state takes care of the total disability out of a special fund created by insurance carriers paying to the state $100 for every fatal case where there are no dependents.

The Department of Rehabilitation is maintained by a similar fund created by each insurance carrier paying to the state the sum of $900 for every fatal case where there are no dependents. The object of this fund is to rehabilitate men who are incapacitated for carrying on their trade by teaching them a new trade which will bring them back to their former economic standing in the community.

Another provision in the law that is not generally understood is that a minor under the age of eighteen years, employed contrary to the labor law, receives double compensation if injured, the insurance company paying the regular amount and the employer the extra 100 per cent; it is specifically stated in the law that the insurance company cannot pay this extra amount for the employer. This is nothing more than a means of coercing employers to a strict observance of the sections of the labor law pertaining to the employment of minors.

The occupational disease section of the law operates the same as for occupational accidents, as far as benefits are concerned. The occupational diseases are set forth in a schedule incorporated in the law and are confined to those employments which deal with the handling of poisonous substances.

The compensation act has been amended very frequently, in fact, nearly every year since it was passed, the amendment usually carrying a more liberal interpretation of the law, with increased benefits.

The fair and equable administration of such a law is a great undertaking. Though it does not require lawyers with special legal training to handle the cases that arise, it does require men of broad vision, kindly nature and absolute integrity, for in many instances the appearance of an injured person before a referee is the only time he comes in direct contact with the state, and this at a time when the state is supposed to be looking out for his interests.

The law is administered by the State Labor Department under the jurisdiction of the Labor Commissioner and the immediate supervision of the Industrial Board. The Labor Commissioner is appointed by the Governor, as are also the three members of the Industrial Board. The Labor Commissioner appoints referees in the various districts who hear and decide cases and make awards for compensation. The decision of the referee may be appealed to the Industrial Board; the decision of the Industrial Board may be appealed to the Court of Appeals.

The expenses of the administration of the compensation law by the state are met by the insurance companies; they prorate the tax on the basis of the premiums written by the various companies.

Insurance Protection

The law compels the employer to guarantee the rights of his employees by taking out insurance in a stock company, mutual association, or the State Insurance Fund or by giving proof to the Insurance Commissioner in the form of bonds of his ability to meet his obligations under the law. The latter is commonly known as self-insurance. When an employer selects the latter method he is really going without insurance, so the term "self-insurance" is a misnomer.

Stock insurance companies are companies formed to give insurance protection to employers for a profit, which is paid to the stockholders. These companies usually write all forms of casualty insurance, of which workmen's compensation is one form. The company's policy is directed by a board of directors, many of whom are appointed from the stockholders.

A mutual association is a group of employers who have combined their insurance interests in order to furnish insurance to themselves at cost. All profits, after the costs of operation have been paid, are distributed to the policyholders, or kept in surplus. The policy of a mutual company is directed by a board of directors appointed from the policyholders. Both stock and mutual companies give the same forms of full and complete coverage, which includes common law liability, as well as workmen's compensation law liability.

The New York Act being compulsory, it was necessary to provide a means of insurance for those employers who were unable to secure insurance through the regular channels, on account of the hazard involved in their industries. Anyone who applies for compensation insurance through the regular channels and cannot obtain it may go to the State Fund as a last resort and the State Fund will have to give protection. It does not give as complete coverage as can be obtained through the regular insurance channels, for it is confined to coverage under the workmen's compensation law and cannot give any common law liability coverage. The State Fund is administered by the State Labor Department under the control of the Labor Commissioner, who appoints the officers of the Fund.

An employer may remain without insurance by furnishing the Insurance Department with his last financial statement and depositing bonds of the state or a city of the state or liberty bonds to the extent of at least one annual premium to be determined by the Insurance Department. In this state it is a very unsound business policy to remain without compensation insurance, unless you have sufficient payroll to insure average results.

It is the insurance company's purpose to render service to its policyholders. Some of the most important services are the settlement of claims, and appearing before the referees to see that the rate is kept at the very lowest figure and that every advantage is taken under the existing rules for rating and classifying risks.

The insurance companies, including the State Fund, depend for their income upon premiums charged the employers on the basis of their annual payrolls. The premium is determined by multiplying a rate, which is commensurate with the hazard of the industry, by every $100 of payroll expenditure. For instance, the rate on a foundry is $2.79. If the payroll is $100,000, the premium is $2,790.

The thing that always concerns the manufacturer in connection with his insurance is his rate. How is it determined? How do plant conditions affect the rate? What can he do to cut his insurance costs?

State Supervision of Rates

Compensation rates are supervised by the State Insurance Department. Compensation insurance is comparatively new to us in this country and we have a lot to learn. One thing we have learned—to the sorrow of the insurance companies and the manufacturers—is that without some well supervised control over rates, disaster sooner or later overtakes those companies, who, in their zeal to secure business, sell it for an inadequate price. Several of the large companies failed between 1914 and 1917 because of rate cutting.

The science of rating has developed so far, and the compensation laws have been in effect long enough so that the experience of the entire country is available and is used for determining the rate for each classification. This is furnished by the National Council on Workmen's Compensation Insurance located in New York City.

The Compensation Inspection Rating Board, the rate making body for the state, rates individual risks. This bureau is under state control, for every insurance policy issued by a company has to go through what is known as the State Stamping Office, where the application is approved as to rates and forms of coverage. This absolutely eliminates all rate cutting. In fact, the only competition left is in the matter of rendering claim service and safety engineering service, except the competition which comes from getting risks reclassified, which I will touch on later.

You will be interested to know how a basic or average rate is made. In the first place, a classified list of processes and industries is made covering all occupations. In some instances it is necessary to use an analogous classification in order to rate a risk. For instance, the manufacture of water meters takes the adding and computing machine manufacture classification and rate.

The Rating Board is a statistical bureau also. Here are compiled all the losses and the premiums collected under a given classification. The ratio of the losses to the premiums give what is known as the pure premium ratio or the actual loss ratio for the classification. To this is added a percentage loading for expenses and profit, which is approved by the Insurance Commissioner. Thus the actual losses and expenses incurred under a given classification determine the average or basic rate for that classification.

We now come to the rating of an individual plant. The basic rate is modified either upward or downward under the merit rating plan. This is divided into two parts, physical and moral, the former known as schedule and the latter as experience rating. The first schedule rating plans were designed along the same lines as the fire schedule rating plan used by the fire underwriters, with the idea of stimulating manufacturers to guard machinery and remove hazardous building conditions, by premium reductions for improved conditions. The present schedule adopted July 1, 1923, was worked out on the basis of experience. Elevators, power transmission machinery and production machinery had proved to be the three chief causes of accidents that could be treated under the schedule plan.

Plant conditions as they exist in an unguarded condition were given weighted values varying according to the hazard, determined by past experience. A certain percentage of the weight can be removed, but not all of it, for even on a perfectly guarded machine there is always a hazard. A flat credit of 5 per cent is given on the rate if safety committee work is carried on in accordance with the standard schedule requirements. Credits from 1 per cent to 5 per cent are given, depending on whether first aid, dispensary with nurse or emergency hospital is maintained. Credit is also given for foot, leg and eye protection in classifications where these are necessary to avoid serious injury. The total weights as determined by an inspection compared with the average for the industry determine how the basic rate is modified to give the schedule rate. This rate may be adjusted twice during the policy year by proper application to the Rating Board.

What has schedule rating accomplished? It has, on the whole, accomplished a very definite result, for it has stimulated employers to guard their hazardous conditions, as perhaps no other means could have done, and at the same time it has given those employers just credit for any superior conditions existing in their plants.

The experience rating plan treats risks that have developed a premium of at least $1340 during the experience period, four years ending one year prior to the policy date. The plan is an attempt to arrive at an appropriate rate on the basis of past accident cost. The record of the individual risk is compared with the experience of other risks of the same class, and the rate which results depends upon whether the risk's experience is better or worse than the class average. The experience rating plan produces a much greater fluctuation in the rate than does the schedule rating plan; so if you want to keep the rate down to the minimum see that the cost of accidents is kept at the minimum.

Comparison of Laws

The laws in different states vary in nearly every respect.[2] There is nothing uniform concerning benefits and rules, except that practically all the laws are elective and not compulsory as is the New York Law. This is on account of the experience New York State had in having to amend its constitution after the original act had been declared unconstitutional. Other states would have had to do the same thing had their bills been drawn with the compulsory feature incorporated in them. They hit upon an ingenious means of evading a conflict with the constitution by making the laws elective by employer and employee. They assumed that in the absence of notice to the contrary both employers and employees elected to come under the law.

The laws that are elective are elective in name only, for an employer or employee who elects to stay without the law is confronted with the same difficulties that confronted them under the old common law procedure; it is to their advantage to elect to come under the compensation act, for it is very evident to all that they will fare much better than under the old procedure.

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[2] See Bulletin of Labor Statistics No. 379, "Comparison of Workmen's Compensation Laws of the United States as of January 1, 1925."

Recently there has been considerable agitation for a uniform national workmen's compensation act. Such an act has unmistakable advantages and I do not doubt that in time it will be passed.

No one can deny that on the whole the compensation law has had a beneficent effect upon industry. Accidents are certainly a normal incident to production and beyond the control of either employer or employee. This being the case, industrial accidents are as much a part of the cost of production as is the repair and maintenance of mechanical equipment and hence properly borne by the ultimate consumer. The system is not perfect and probably never will be, but it has supplanted the old makeshift methods of compensating workmen for injuries with a system that is laid on certain definite lines of justice.

International Industrial Welfare Congress, Flushing, Holland, June 19-26, 1925

By Louise C. Odencrantz 331.15

THE first International Industrial Welfare Congress was held in Flushing, Holland, June 19-26, 1925. It was the outcome of an informal Conference held three years ago in France, when a group interested in industrial welfare in some ten different countries realized the value and encouraging influence that such a congress would have.

Eighteen countries were represented, including most of the European countries as well as India, China, and Japan. Representatives were present also from the International Labor Office. The group included employers, welfare and personnel workers, representatives from works councils, factory inspectors, management engineers and others interested in industrial welfare from such angles as health, education, and social welfare. In fact, the diversity in the points of view represented at the Congress probably marks it as unique.

Reports upon the stages of development of industrial welfare work in the countries represented brought out some significant points on the part that welfare work undertaken by the employer within industry plays in the development of general industrial welfare. It seems to be but a stage between the awakening to the need of such work by the employer who undertakes it and the realization by the community of its responsibility to make such provisions. In countries like Australia where the minimum standards of industrial welfare set forth by the International Labor Office and generally agreed to by thoughtful employers have been established, industry has not troubled itself with "welfare" work, but is developing personnel work and scientific employment methods, recognizing these as a permanent responsibility of management.

The report from Sweden illustrated some interesting developments, which were also referred to in reports from other countries. In the matter of employee representation, it was pointed out that in Sweden collective bargaining exists in every industry, and that apparently no need has been felt for developing works councils as in other countries. The government recognizes the value of welfare work and encourages its undertaking not alone by employers, but by trades unions, groups of workers, community centers and even the factory inspectors. In fact, in both Sweden and England the scope of work of factory inspectors is broadening from a purely police duty to one of advice and counsel on welfare matters for the employers and workers with whom they come in contact. This tendency was pointed out in similar statements made at the international meeting of factory inspectors in Geneva in 1923, when they gathered from some twenty-seven countries to discuss their work.

From China came an appeal, deeply felt by those who are trying to cope with the industrial problems of China, for a better understanding of the principles underlying welfare work and the dangers of accepting the mechanics and machinery of its administration as the essentials of the work, and failing to grasp the underlying spirit.

Reports from European countries, as in the United States, showed a general tendency of welfare or personnel work within industry to concentrate upon matters relating more specifically to the job, and a gradual shifting to the community of activities which of necessity have been undertaken by employers interested in the general welfare of their employees.

One of the reports most interesting to the Congress was made by Dr. Ernst Hymans, a management engineer of Holland, on "The Relation of Scientific Management to Welfare or Personnel Work." To many he opened up a new understanding of the much misunderstood scientific management movement. He pointed out that real scientific management which considers the human element as well as the methods and machines is, after all, one of the fundamental methods of improving human welfare in industry, not alone in the provision of proper physical conditions but in the establishment of fair and just methods and relations, independent of the prejudices and personalities of supervisors.

Prof. Dr. Ing. A. Friedrich, of the Technical High School, Karlsruhe, Germany, under the colorless title of "Vocational Selection" made a most valuable contribution to the question of the philosophy of work and its relations to a man's life and his creative instincts.

Dr. Friedrich's speech illustrates the sincere effort at the Congress to formulate and understand the ideals and principles upon which industrial welfare should be based as well as practical methods of promoting them. Differing as many of the representatives of these various countries do on many other questions, they showed an encouraging agreement in their conception of the ideals of human welfare in industry.

The Congress was organized into a permanent International Association for the Study and Improvement of Relations and Conditions in Industry. It is composed of individual members, with the administration in the hands of a council composed of two representatives from each country. Headquarters will be located in Zurich, Switzerland, but temporarily, the secretary, Brenda Voysey, is located in the Leerdam Glassworks, Leerdam, Holland. Miss K. Hesselgren, Chief Woman Factory Inspector of Sweden and a member of the Upper Parliament, was elected president. The next Congress is planned for 1928.

The Training of Salesmen

By **C. E. Shaw and J. S. Keir** (658.807)

Dennison Manufacturing Co., Framingham, Mass.

At the request of the Editor of the Bulletin the reviewers present general observations on the problem of the training of salesmen in terms of Dennison experience, suggested by the recent volume by Kenagy and Yoakum.[1]

HUMPTY DUMPTY, whose proclivity for sitting on a wall has been a by-word for generations of childhood, is in somewhat the same position that a reviewer of "Selection and Training of Salesmen" finds himself.

The book is by competent authority, shows high professional craftsmanship and, considering its compactness, is comprehensive in scope. Its successive chapters consider the sales organization; field organization and research; management of a branch sales agency; specifications for sales occupations; technique and use of sales specifications; time study as a part of job analysis; determining sales efficiency; recruiting salesmen; interviewing and auxiliary records; measures of successful selection; mental alertness tests for salesmen; personality and aptitude tests; training salesmen; supervision; conventions. As a compact, up-to-date general treatise on the problem of sales organization and control and as a starting point for further study of the problems, it offers little to adverse criticism.

However, for the sales manager who is seeking definite ideas relative to the ever present puzzle of salesmen training, the book has not succeeded in offering anything significant in the way of concrete suggestion. Formal methods of education such as salesmen classes and conventions are adequately surveyed, but the vital question of training in the field is mentioned on only two pages and then very briefly.

A distinction may be drawn between the theoretical aspects of learning and the "doing" aspects of it. A beginner at playing the piano practices over and over again until certain habit patterns are formed, that is, until the "doing" aspect becomes practically mechanical. The theoretical and book phases continue the while but take on greater significance only as the mechanical habit patterns become set. The fitting of individuals for salesmanship also contains the elements of "doing" and of learning from the book. Only for the sake of convenience and entirely arbitrarily these two aspects may be termed "training" and "education" respectively.

It has been the experience of the Dennison Manufacturing Company that the materials and methods employed for the educational aspect of the work are far in advance of those available for the training aspect. There are three major sources from which this educational material flows:

1. Written material in the form of the catalogue, price book, salesmen's manual, sales letters, etc.
2. Formal salesmen's classes, in the arrangement for which greater and greater care has been taken to present a well rounded, adequate program.
3. Visits of merchandise managers and general sales managers to the districts.

From these sources it is largely true that an alert individual may acquire a sufficient knowledge of merchandise, sales policies and selling technique to form the basis of successful salesmanship. The rub comes in the successful actual use of the knowledge thus acquired. This application of knowledge leads us to a consideration of the training aspect of the problem.

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[1] "The Selection and Training of Salesmen," by H. G. Kenagy and C. S. Yoakum. The McGraw-Hill Book Company, New York, 1925, pp. xviii, 380.

It has been the Dennison policy to cover the training element through the medium of a definite program supplied the district manager supplemented by four different agencies. These agencies are as follows:

1. Visits of merchandise managers and general sales managers to the districts and the work of these executives with individual salesmen.
2. District managers working in the field with their respective sales forces.
3. The occasional assigning of a very successful salesman who has a capacity for teaching, to the task of visiting districts as needed for field work with the salesmen in the districts visited.
4. Holding formal salesmen's classes in selected districts instead of at the home office at Framingham, so that laboratory exercises, so to speak, may accompany the classroom instruction.

The elements in both the training and educational aspects of fitting individuals for salesmanship have proved to be essentially sound. But it must be admitted that the net results are a disappointment. It is obvious, therefore, that somewhere the mechanism does not function. Closer study discloses the fact that the fault is not so much in the mechanism itself (though of course there are all sorts of improvements that may be made in it) as in the way it is operated.

It has been generally assumed that the fitting of individuals for salesmanship is the responsibility of each district manager. To this end the district managers have been supplied with increasingly better tools in the form of better organized educational material and better programs for its use. Some of the district managers have made use of this equipment to the satisfaction both of the salesmen and the manager involved. We mean no criticism to any district manager, but it has been found that too often, however, not only is the equipment not used, but that the old haphazard and expensive method is employed of throwing the incipient salesman overboard in deep water to swim or drown. Since sufficient data are not available to prove whether the equipment provided is adequate or inadequate, the conclusion is forced home that the basic assumption in the premises of the district manager's responsibility is in error. The convcition is growing that it is the responsibility of the district manager *to see to it* that his men are adequately fitted for their job; but it does not necessarily follow that the actual fitting is a required activity of the district manager.

Closely allied to this conviction is the further thought that the fitting for salesmanship cannot be carried on sporadically, and particularly the training aspect cannot be covered except through the medium of a carefully followed out program.

To meet these contingencies two proposals have been considered. The first of these proposals is to have experienced salesmen work with such men in the field as the district manager designates as needing coaching. But this plan has the disadvantage that the experienced salesmen who are of sufficient calibre to assume such a task are too valuable to be spared from actual selling.

The second proposal is that in addition to educational materials and programs there shall be provided a *service* of training upon which any district manager may call as circumstances dictate.

The study of the problem to date has largely proceeded on the trial and error basis—and certainly much has been learned from these experiences, if only on the negative side of finding out what *not* to do. But it is probable that at this stage a more scientific approach will yield more fruitful results. To this end it is planned to make a microscopic study of a true cross section of the sales organization; to isolate the germ of fitting for salesmanship if possible; and to subject the animal to the tests of merchandising, selling, and training. It is hoped that this laboratory test will afford the information out of which suitable materials for an adequate structure of fitting for salesmanship may be evolved.

President Brown Addresses New Sections

PRESIDENT Brown spoke at the organization meeting of the Western Pennsylvania Section, in Pittsburgh, September 17, which was attended by 35 members and guests. The meeting was called by Gustav E. Schulz of the Jones & Laughlin Steel Corporation and Alfred G. Ashcroft of the Pittsburgh Diagnostic and Consultation Clinic.

During the month of October he plans to attend meetings in Hamilton, N. Y., where a new student branch has been organized at Colgate College (October 9), Newark (October 13), Philadelphia (October 14) and Springfield, Mass. (October 15).

Business Literature

Reviews

The Regularization of Employment. By H. Feldman, Ph.D.[1] Harper & Brothers, New York, 1925, pages xvi, 427. (658.311)

The importance to the business man of this exceptionally important study is established by its point of view and emphasis. It sees the problem of unemployment as one of employment, and the problem of employment as one of managing. Nearly 60 per cent of the study is devoted to a technique of regularization, i.e., a technique of managing the individual business in such wise as to minimize irregularity of operations. It is therefore essentially a survey of progressive administrative policies and managerial methods.

As the author points out (page 426), society's attempts to grapple with the unemployment problem have, broadly speaking, passed through three stages. First, for centuries, lack of a job was regarded as due to personal fault. Second—and until very recently—interest was focused on the phenomenon of unemployment itself, but it was regarded as inevitable and any remediable program was limited to such measures as public works, public employment exchanges and unemployment insurance. Third, in the stage upon which enlightenment is now entering, (in which matter Dr. Feldman's study should be of assistance) the problem is seen as one having to do with the purposes and methods of management of the aggregate of individual businesses. "The lessening (of unemployment) will then come about in the only way it is now seen to be possible on any large scale—as a consequence of operating plants and industries under intelligent managerial policies." (page 427)

Accordingly, although the author considers the problem in all aspects and gives adequate consideration to causes and effects of unemployment and to social and governmental remedies, he gives principal consideration to unemployment as a problem of wise administration and efficient management of the individual plant. Separate chapters are given to such topics as control of demand through research, diversifying output, simplification and the style problem, changing customary purchasing habits, scientific sales planning, production planning, and employment policies and methods which steady employment.

We recommend this book to our readers for it is 100 per cent Taylor Society point of view. In fact, the chapter which summarizes Dr. Feldman's point of view, Chapter III, The New American Emphasis in the Attack on Unemployment, appeared originally in the *Bulletin of the Taylor Society,* Volume VII, No. 5. This complete study now available in book form is published under the auspices of the American Management Association, and constitutes an important contribution on the part of that association to management literature.

H. S. Person.

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Personal Leadership in Industry. By David R. Craig and W. W. Charters. McGraw-Hill Book Co., Inc., New York, 1925, pp. xii, 239. ((658.31242)

This book is based upon "personal interviews with more than 110 successful executives." The authors "wish to acknowledge their gratitude to the executives, from presidents to assistant foremen, who put aside their affairs to talk with the interviewers sometimes for as much as four or five hours at a time." The material thus acquired was critically considered by Dr. D. R. Craig and Dr. W. W. Charters, Assistant Professor of Industry and Dean of the Graduate School respectively of the University of Pittsburgh. Out of these critical discussions the book was born. The study began presumably as an inquiry into executive methods; "the problem of supervision more and more took on the appearance of a question of leadership" as the reports were analyzed.

The authors claim for the book that it is "a working plan, leading up to the final chapter of self training. . . . It should be read as a definition of qualities and character traits involved in effective personal leadership in industry." In the last chapter a rating scale appears, in terms of which the reader may judge his qualifications for leadership and may by this means learn how to mend such defects as a confidential friend may judge him to have.

There can be no doubt as to the practical utility of this careful study. There is probably no other book so direct, so easy to read, which may be given by a president to his executives or may be acquired by an ambitious executive for himself. Nor is there any doubt that anyone who has to mix with and to direct the labors of others will be the better equipped for his work by reading it. America has an enormous task before her in her need to educate an apostolic succession of executives to carry on the traditions and methods of the great and growing commercial enterprises of the country. The need to take home-grown and imported human material and adapt it quickly to commercial and civil use can be compared only with the emergencies of the world war. And in this task the work of Craig and Charters will find a notable place.

If reviewers were permitted to have eccentricities, one might have asked for some consideration of the contributions to our social understanding which anthropology, clinical physiology and psychopathology have still to make. One is always afraid that a book which is so easily read and so short may fail to warn students of the infinite complexities of the human organism. It might even be misused to enforce the common claim that those at present in charge of industry know very well how to "run" industry; yet no claim could be more false than this in our modern civilization. The average successful executive of our time knows as little of the real sources of industrial trouble as he does of the physiology of blood pressure. Civilization arose as a product of a far-reaching silent partnership between science and commerce. And if this silent partnership were to end, commerce would be powerless to deal with industrial situations. The real causes of industrial trouble are as much outside the executives' ambit and comprehension as the Einstein theory of relativity.

But this fact does not in the least minimize the value of the authors' work to those who train executives and to executives themselves. The book is a new departure and timely. It is an empirical study of industrial leaders which every industrialist should read.

ELTON MAYO.[2]

The Psychology of Selecting Men. By Donald A. Laird, Ph.D.,[3] McGraw-Hill Book Co., Inc., New York, 1925, pp. 274. (658.3115)

Professor Laird dedicates his newly published book on employment psychology "to those who are furthering industrial efficiency and happiness by studying human beings in the spirit and with the methods of science." According to the preface, he intends his volume to serve both the student entering employment work and the man already in it as a manual which both types can readily understand.

In a very diverting introductory chapter the reader is introduced to the well-known psychological fakir, a natural but questionable by-product of the present "applied psychology" movement, who with his pseudo-science preys upon a credulous public, hard-headed business men included. He is warned of the wiles and the greed of this bête noir of the scientific world and then graciously referred to honest-to-goodness, orthodox psychologists with worthy records of achievement.

To the employer following the old methods of employment the industrial psychologist comes as an axe-wielding iconoclast. Fully half of Dr. Laird's book deals critically with these commonly accepted methods of selecting applicants: the letter of application, the personal interview, character reading by facial appearance, bumps or horoscope, and the applicant's reputed industrial history. All of these oldtime idols are subjected to a merciless grilling at the hands of an inexorable science, and come out of it practically stripped of their ancient prestige because of their slight efficacy. The chapters devoted to these critical analyses are all quite readable and the conclusions, supported by a wealth of evidence in the form of tables and illustrations, are convincing.

With the niches empty, the disillusioned employment manager turns from the work of destruction and looks to the latter part of the book for new light on his old problems. Unless he has remained ignorant of the accomplishments of industrial engineers during the last decade, he will find here much with which he should be fairly familiar, such as trade tests, graphs and other records of individual progress. He will perhaps feel the same keen disappointment experienced by the reviewer that the negatory throughout the volume outweighs the positive, and that the latter appears so fragmentary, perhaps because of its elementary nature, that one has the impression of many loose ends when the book is finished.

He will hardly be satisfied with mere assertions and assumptions such as: "There are no reasons for not believing that half the applicants rejected by traditional methods are better fitted for the work than many who are accepted" (p. 241). He will not be able to share the enthusiasm of industrial psychologists over the superiority and often implied infallibility of their methods and accomplishments as long as he reads such qualifying statements as: "Statistics, charts and tables do not always mean what they appear to indicate" (p. 226). Or: "The exact mathematical value found for the degree of relationship (i.e., between personal data) should not supplant reason" (p. 214).

In the chapters devoted to a discussion of personality traits, their measurement and correlation to determine vocational fitness, there is an abundance of illustrative material taken from studies of salesmen, students, insurance agents and clerical workers. The industrial employment manager will look in vain for any material applicable to the countless American industries whose workers come from that vast army of applicants who have nothing to offer but a pair of hands, a fair amount of schooling and a mind willing to learn. True, the final chapters of the book deal with mental tests, their construction and use, but those of us who have used them in industries employing "green" help know that they are of little value in selecting good prospects. Granted a mind above that of a half-wit unable to pass the test, intelligence plays a minor part in determining a green employee's success, as compared with his likes and dislikes, his patience, his motives and incentives.

Employment psychology has made but a beginning; its field of exploration is still unlimited. But science, in its absorption in findings, needs the restraining, cold hand of the Philistine business man to temper its enthusiasms and keep its "time-consuming procedures" in the realm of common sense. The discoveries resulting from a laborious research that a worker who has had a record of accidents is more likely to have more than the person who has had few; that there is no particular height which spells success for salesmen; that other factors besides age must be taken into consideration in selecting typists—such discoveries should impress the practical business man about as forcibly as the recent discovery by a modern savant that the earthworm sings soprano, and remind him instinctively of the old fable of the elephant which after great labor brought forth a mouse.

Dr. Laird's book will recommend itself in a number of respects to the employment man who has been following traditional methods but is alert to study how he may improve his practices. It is quite readable, concise and abundantly illustrated with pictures and charts, many of which tell a story in themselves. It presents a very pleasing typographical appearance, far different from the dry, forbidding aspect of many management volumes.

Unfortunately the book abounds in errors, typographical and otherwise, which will prove irritating to the careful reader and which reflects credit neither on author, editor nor publisher, all of whom appear to be advocates of the strictest accuracy in their respective fields.

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